

**IN THE UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF VIRGINIA  
ALEXANDRIA DIVISION**

|                                 |   |                                |
|---------------------------------|---|--------------------------------|
| BMG RIGHTS MANAGEMENT (US) LLC, | ) |                                |
| and ROUND HILL MUSIC LP,        | ) | Case No. 1:14-cv-1611 (LO/JFA) |
|                                 | ) |                                |
| Plaintiffs,                     | ) |                                |
|                                 | ) |                                |
| v.                              | ) |                                |
|                                 | ) |                                |
| COX ENTERPRISES, INC., COX      | ) |                                |
| COMMUNICATIONS, INC., and       | ) |                                |
| COXCOM, LLC,                    | ) |                                |
|                                 | ) |                                |
| Defendants.                     | ) |                                |
|                                 | ) |                                |

**DECLARATION OF CHRISTOPHER T. RUCINSKI IN SUPPORT  
OF DEFENDANTS' MOTION FOR SUMMARY JUDGMENT**

**REDACTED VERSION SOUGHT TO BE SEALED**

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I, Christopher T. Rucinski, submit this declaration pursuant to 28 U.S.C. § 1746.

**I. INTRODUCTION**

1. I am a computer scientist working at Elysium Digital, L.L.C. (“Elysium Digital”), a technical litigation consulting company in Boston, MA. Counsel for Cox Communications, Inc. and CoxCom, LLC (collectively, “Cox”) retained me to submit this declaration in support of their motion for summary judgment and in particular to comment on the evidence that the Rightscorp software<sup>1</sup> collects and does not collect regarding alleged copyright infringements. In this declaration I will refer to BMG Rights Management (US) LLC as “BMG” and Round Hill Music LP as “Round Hill.”

2. The facts in this declaration rest upon my personal knowledge and analysis of the source code that Plaintiffs’ agent Rightscorp produced in this lawsuit. I also rely on certain testimony from the depositions of Rightscorp personnel and Plaintiffs’ technical expert Barbara Frederiksen-Cross. I personally attended three of those depositions, including the July 29, 2015 Rule 30(b)(6) deposition of Greg Boswell of Rightscorp, who wrote the Rightscorp software; the July 29, 2015 Rule 30(b)(6) deposition of Robert Steele of Rightscorp, who created the specification for the Rightscorp software and supervised its development; and the August 12, 2015 expert deposition of Barbara Frederiksen-Cross. (I understand that Andrew Bridges has attached and authenticated the relevant excerpts of the deposition transcripts to his declaration in support of this motion; I reattach the salient portions of testimony to my declaration here.)

**II. QUALIFICATIONS AND COMPENSATION**

3. I graduated *cum laude* with an A.B. in Computer Science from Princeton University in 2010, and in 2015 I obtained GCFE (GIAC<sup>2</sup> Certified Forensic Examiner) certification. In 2010 I began working at Elysium Digital, and in that capacity I have worked on more than 50 technical matters to date. Many of those technical matters have involved analysis of

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<sup>1</sup> In this declaration I mean “Rightscorp software” to refer to the “technological system” that Rightscorp has developed as referenced in Dkt. 16 at ¶2.

<sup>2</sup> “GIAC” stands for Global Information Assurance Certification.

Java source code, and I have more than ten years of experience writing and analyzing Java source code. I am also well-versed in a number of other programming languages including but not limited to Python, C, Objective-C, Perl, and SQL.

4. I have provided consulting services for the Federal Trade Commission, and I provided deposition testimony in 2013 in the matter of *Shurtape Technologies, LLC et al. v. 3M Company*, U.S. District Court of Western North Carolina (Case No. 5:11-cv-00017) (trademark dispute related to consumer statements on the Internet).

5. My CV is **Exhibit 1** to this declaration.

6. Elysium Digital is being compensated for my time at my standard rate of \$340 per hour. Elysium Digital is also being compensated at varying rates ranging from \$120 to \$520 per hour for the work of additional Elysium Digital employees who are working at my direction. All compensation described above does not depend on the outcome of this case.

### **III. PREVIOUS WORK**

7. I have submitted two expert reports in this matter. My first expert report, the “Rebuttal Report of Christopher Rucinski” (“Rucinski Rebuttal”), was submitted on July 10, 2015. Rucinski Rebuttal is **Exhibit 2** to this declaration. My second expert report, the “Supplemental Rebuttal Report of Christopher Rucinski” (“Rucinski Supplemental”), was submitted on July 31, 2015. Rucinski Supplemental is **Exhibit 3** to this declaration. The opinions I express in Rucinski Rebuttal and Rucinski Supplemental are my own; they accurately reflect my analysis of the source code and data that Rightscorp produced in this matter. I incorporate Rucinski Rebuttal and Rucinski Supplemental into the body of this declaration by reference. My statements in this declaration are consistent with the facts and opinions I expressed in, and come from the same analysis I performed in connection with, Rucinski Rebuttal and Rucinski Supplemental.

### **IV. BITTORRENT TECHNOLOGY OVERVIEW**

8. BitTorrent is a protocol that allows computers to exchange files with one another in a distributed way. This differs from other protocols like the File Transfer Protocol (“FTP”) in

that a given computer can receive different portions of a file from many computers as opposed to receiving all portions of a file from a single computer. Users can use the BitTorrent protocol by running a BitTorrent client application that is designed to use the BitTorrent protocol. In order to download or upload particular files using the BitTorrent protocol, a user can find or create a .torrent file (i.e. a file that ends with “.torrent” and conforms to a specific format, described below) for use with their BitTorrent client application.

9. A .torrent file identifies both a set of files that can be shared using that .torrent file and a tracker that can facilitate that sharing. The section of the .torrent file that contains this and other information is referred to as the “info” section of the .torrent file, and .torrent files are generally identified by an “info hash,” which is a SHA-1 hash of the info section that provides an identifying sequence of characters based on the contents of the info section. The .torrent file itself does not contain any data from the files that can be shared using that .torrent file; it only contains metadata about them. Using a given .torrent file, a BitTorrent client application can connect to the associated tracker, which is a computer server that allows the BitTorrent client to identify other computers that want to participate in uploading and/or downloading files associated with the .torrent file. The computers that want to participate in this way are referred to as “peers.” Collectively, the peers that are participating in exchanging files for a particular .torrent file are referred to as a particular “swarm.”

10. I will refer to the set of files that can be uploaded and downloaded using a particular .torrent file as the “torrent payload” associated with that .torrent file. When peers upload or download portions of the torrent payload amongst each other, they do so in portions called “pieces.” Each piece is a small part of the torrent payload (the .torrent file specifies the size of each piece), and depending on how the torrent payload is structured, a particular piece may contain data from one file or more than one file in the torrent payload. When a peer first connects to another peer in the swarm, the BitTorrent protocol allows for each peer to send a “bitfield” that identifies which pieces of the torrent payload each peer is willing to send. The two peers can then begin to exchange pieces of the torrent payload between each other. Note that a peer participating

in a swarm may configure its BitTorrent client application to only receive (rather than both receive and transmit) pieces of a torrent payload, just as the Rightscorp software does. A peer participating in a swarm may also configure its BitTorrent client to receive or transmit only specific pieces of a torrent payload.<sup>3</sup>

11. Peers connected to a swarm are uniquely identified by the combination of their IP address and port. An IP address is similar to a mailing address in that it identifies a location for data to be transmitted over the Internet, though it is dissimilar to a mailing address in that it may be reassigned to a different location. An IP address may be assigned to a particular computer, or it may be assigned to a gateway, which receives data on the Internet on behalf of multiple computers and then forwards the data to the appropriate computer. Gateways use port numbers to keep track of which computers should receive which data; an example of a gateway is a modem/router combination configured in a home network to connect each household member's computer to the Internet. Port numbers can also be used for an individual computer to keep track of data that is intended for specific applications running on that computer, with each application using a different port number.

## **V. OVERVIEW OF RIGHTSCORP'S SOFTWARE**

12. Rightscorp's software processes for detecting instances of alleged copyright infringement and generating notifications of claimed copyright infringement work as follows:<sup>4</sup>

- i. Rightscorp claims to receive information about copyrighted music compositions from respective copyright owners. I will refer to this process as "ingestion."<sup>5</sup>
- ii. Rightscorp finds and downloads .torrent files from the Internet and matches the metadata appearing in the "info" portion of the .torrent files against the

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<sup>3</sup> See Rucinski Supplemental at footnote 123.

<sup>4</sup> See Rucinski Rebuttal at ¶11.

<sup>5</sup> See Rucinski Rebuttal at ¶¶14 – 15.

artist and title information for ingested works in order to determine a preliminary list of .torrent files to target.<sup>6</sup>

- iii. Rightscorp downloads the torrent payload associated with each such .torrent file and uses some combination of Audible Magic and AcoustID fingerprint technology (and in some cases, manual processes) in an attempt to verify whether information in the names of the song files appearing in the torrent payload appear to be accurate. Those .torrent files whose song files appear to be accurately named based on the results of the fingerprint technology are then flagged for further monitoring.<sup>7</sup>
- iv. Rightscorp repeatedly connects to the swarm for each such .torrent file and monitors the bitfield returned by IP addresses of the computers in the swarm. If the bitfield indicates that a given IP address is willing to offer at least 10% of the torrent payload to Rightscorp, then Rightscorp records an alleged copyright infringement associated with that given IP address and port number combination for that given .torrent file.<sup>8</sup>
- v. Rightscorp multiplies each alleged copyright infringement associated with a given .torrent file by the number of individual songs purportedly in the payload of that .torrent file that Rightscorp is monitoring, creating a multitude of alleged copyright infringements now each associated with an individual song from a torrent payload, rather than just one alleged copyright infringement associated with one .torrent file.<sup>9</sup>
- vi. Rightscorp sends one or more automated emails to the Internet Service Provider (“ISP”), e.g. Cox, informing the ISP about each alleged copyright

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<sup>6</sup> See Rucinski Rebuttal at ¶¶16 – 18.

<sup>7</sup> See Rucinski Rebuttal at ¶¶19 – 23.

<sup>8</sup> See Rucinski Rebuttal at ¶¶24 – 28.

<sup>9</sup> See Rucinski Rebuttal at ¶¶29 – 30.

infringement associated with each file associated with the individual .torrent file.<sup>10</sup>

13. Rightscorp also provides a web-based interface intended for use by ISPs that displays information gathered by its processes for detecting alleged copyright infringement (described above). I understand that Rightscorp calls this interface the “Dashboard.”<sup>11</sup>

14. Separate from these processes, Rightscorp sometimes will download and store portions of relevant torrent payloads downloaded from individual IP addresses. These torrent payloads and the associated download information do not form a part of or impact the processes described above for generating automated emails reporting alleged copyright infringements to ISPs. In particular I have seen no evidence that indicates that these downloaded torrent payloads have any effect on whether emails alleging copyright infringement are sent to any party.<sup>12</sup>

**VI. WHAT EVIDENCE THE RIGHTSCORP SOFTWARE COLLECTS AND DOES NOT COLLECT REGARDING ALLEGED COPYRIGHT INFRINGEMENT**

**A. Finding .torrent Files and Attempting to Verify Files in the Payloads of .torrent Files**

15. The Rightscorp software downloads, uses, and relies upon .torrent files that are available on the Internet through websites that provide .torrent files for download, such as “Kickass Torrents” at <http://kickass.to>, as part of its process for using the BitTorrent protocol to identify conditions at IP address and port combinations for which it will later generate notifications of claimed infringement.<sup>13</sup> I have seen no evidence that Rightscorp, whether by means of Rightscorp software or otherwise, sends any correspondence to websites such as <http://kickass.to> that provide .torrent files for download to request that such websites remove or otherwise disable access to the .torrent files that they provide for download and that correspond to

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<sup>10</sup> See Rucinski Rebuttal at ¶¶31 – 33.

<sup>11</sup> See Rucinski Rebuttal at ¶¶34 – 35.

<sup>12</sup> See Rucinski Rebuttal at ¶¶36 – 37.

<sup>13</sup> See Rucinski Rebuttal at ¶¶16 – 17.



any of the “Asserted Works,” which I will define to be the musical compositions identified by Plaintiffs in Schedule B appended to Round Hill’s First Supplemental Responses to Defendant CoxCom, LLC’s Interrogatory Nos. 1, 2, 8, and 9 and Schedule C appended to BMG’s Second Supplemental Responses to Defendant CoxCom, LLC’s Interrogatory No. 1. Schedule B is **Exhibit 4** to this declaration, and Schedule C is **Exhibit 5** to this declaration.

16. As part of the fingerprinting process, the Rightscorp software downloads files in the torrent payload of each .torrent file that it determines to correspond to the Asserted Works in order to try to verify that the downloaded files contain sound recordings that Rightscorp expects to find. This process is performed with `SampleIt3.java`<sup>14</sup> and related source code files, and it does not involve downloading any files from specific peers in the swarm. I describe this process in more detail in Rucinski Rebuttal ¶¶19 – 23. The Rightscorp software supports associating multiple sound recordings (that correspond to the Asserted Works) with a single .torrent file if those sound recordings appear to be in that .torrent file’s payload and then downloading the files that appear to be those multiple sound recordings. I have not seen any of the downloaded files that Rightscorp stored as a result of this fingerprinting process, and I do not know whether or not Rightscorp maintains these downloaded files.

**B. Monitoring Bitfields of IP Address and Port Combinations and Generating Notifications of Claimed Infringement**

17. The Rightscorp software used for purportedly determining infringement is neither accurate nor reliable; I describe the operation of the Rightscorp software in Rucinski Rebuttal at ¶¶8 – 46.<sup>15</sup>

18. The most salient observation in that discussion is that the evidence related to copyright infringement that the Rightscorp software collects about an IP address and port combination before sending notifications of claimed infringement is only the percentage of pieces

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<sup>14</sup> In this declaration, terms in Courier font refer to specific files in the Rightscorp software.

<sup>15</sup> See also Rucinski Supplemental at ¶¶12 – 28.

of the torrent payload that the peer at the IP address and port is willing to offer to disseminate. The Rightscorp software collects this evidence by recording the bitfield returned by peers as they connect to the Rightscorp BitTorrent client using the BitTorrent protocol. Some peers may use a technique called “lazy bitfield” where the peer possesses the entire torrent payload but transmits a bitfield that indicates it possesses only part of the torrent payload. Other peers may not possess the entire torrent payload and therefore also transmit a bitfield that indicates that it possesses only part of the torrent payload. The Rightscorp software does not distinguish between these two cases. If the percentage indicated by a peer’s bitfield is equal to or greater than 10%, then the software generates notifications of claimed infringement.<sup>16</sup> In my extensive review of Rightscorp materials, I have seen no evidence that the Rightscorp software downloads any files in the torrent payload from a peer at a particular IP address and port as a condition for sending notifications of claimed infringement.<sup>17</sup> [REDACTED]

[REDACTED] **Exhibit 6** to this declaration consists of relevant excerpts from the August 12, 2015 Deposition of Barbara Frederiksen-Cross [87:8 – 22]. I have also seen no evidence that the Rightscorp software attempts to verify whether any files have been transmitted from one peer to another peer before Rightscorp sends notifications of claimed infringement for the IP address and port of either peer. Furthermore, I have seen no evidence that Rightscorp’s software verifies that any files have been transmitted from one peer to another peer at any other time, except upon the request of Rightscorp itself in connection with its selective download of full file samples. Because of this, I have seen no evidence that anyone used Cox’s services to receive or transmit (download or upload) any sound recordings corresponding to the Asserted Works.

19. The 10% bitfield threshold<sup>18</sup> that the current version of Rightscorp’s software uses to determine whether to generate and send notifications of claimed infringement does not take into account which pieces of the torrent payload a given peer is offering to disseminate.

<sup>16</sup> See Rucinski Rebuttal at ¶26.

<sup>17</sup> See in particular Rucinski Rebuttal at ¶37.

<sup>18</sup> See Rucinski Rebuttal ¶26.

Even if a peer is communicating, through the bitfield, that it is offering to disseminate only pieces that correspond to files that do not relate in any way to the Asserted Works, if the number of pieces that the peer is offering to disseminate equals or exceeds 10% of the total number of pieces in the torrent payload, then the Rightscorp software will generate notifications of claimed infringement for that peer for each sound recording in the torrent payload that appears to correspond to one of the Asserted Works. The BitTorrent protocol and Rightscorp software are described more generally above, but a specific example will be useful to illustrate this phenomenon.

- i. Plaintiffs BMG and Round Hill have identified their asserted copyrights in this case in their supplementary responses to Interrogatory 1. As of July 31, 2015, when I submitted Rucinski Supplemental, the most up-to-date record of these asserted copyrights was the two Schedule Bs appended to Plaintiffs respective First Supplemental Responses to Defendant CoxCom, LLC's Interrogatory Nos. 1, 2, 8, and 9. **Exhibit 7** to this declaration is Schedule B appended to BMG's First Supplemental Responses to Defendant CoxCom, LLC's Interrogatory Nos. 1, 2, 8, and 9. **Exhibit 4** to this declaration is Schedule B appended to Round Hill's First Supplemental Responses to Defendant CoxCom, LLC's Interrogatory Nos. 1, 2, 8, and 9. Since then, on August 12, 2015, BMG changed its list of copyrights in this case with Schedule C that it appended to BMG's Second Supplemental Response to Defendant CoxCom, LLC's Interrogatory No. 1, which is **Exhibit 5** to this declaration. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- ii. The *infractions*<sup>19</sup> database table<sup>20</sup> was produced by Rightscorp, and it includes a row related to a .torrent file that includes a large number of files with names that suggest that the files are sound recordings of songs that the Beatles performed. That .torrent file has an info hash of “7dfe8b642d412ac86c5e90921ae35f3d81b707cf”. I have identified a .torrent file (“Beatles Discography Torrent File”) with the same hash,<sup>21</sup> which is **Exhibit 8** to this declaration. There are 329 files identified in the Beatles Discography Torrent File; most appear to be sound recordings, but others appear to be image files. [REDACTED]

<sup>19</sup> In addition to their standard usage regarding emphasis, I use italics in this declaration to identify the names of database tables used by the Rightscorp software.

<sup>20</sup> The *infractions* database table was produced by Rightscorp in a CSV file, RGHTS00011291\_STEPRIGHT00006233.

<sup>21</sup> I searched at <https://www.google.com> for the info hash, and found a .torrent file with the same info hash at <http://torrenthound.com/torrent/7dfe8b642d412ac86c5e90921ae35f3d81b707cf>. Matching info hashes is a sound way to identify a .torrent file since there is a vanishingly small chance that two different .torrent files will have the same info hash. See the Report of Barbara Frederiksen-Cross, submitted on June 19, 2015, at footnote 11, which is **Exhibit 12** to this declaration.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- iii. According to the Beatles Discography Torrent File, there are 912 pieces<sup>22</sup> in the torrent payload, and each piece is 2MB in length.<sup>23</sup> If a peer offered to disseminate as few as 92 pieces of the 912 total pieces (i.e., at least 10%), then the Rightscorp software would generate notifications of claimed infringement from that peer for *every one* of the Beatles Files at Issue. [REDACTED]

[REDACTED]

[REDACTED] The Rightscorp software doesn't check whether a peer offers to disseminate those [REDACTED] when applying the 10% threshold. For instance, there are two directories in the torrent payload entitled "The Beatles – 1968 – The Beatles (The White Album)/Disc 1/" and "The Beatles – 1968 – The Beatles (The White Album)/Disc 2/", [REDACTED]

[REDACTED] Altogether, the files in those two directories of the torrent payload are more than 200 MB in size, which means that they span more than 100 pieces. If a peer used the bitfield to offer to disseminate only

<sup>22</sup> Offset 0x904C identifies 18,240 bytes dedicated to hashes for all the pieces, and each hash is 20 bytes in length, so there are 912 pieces.

<sup>23</sup> Offset 0x903C identifies 2,097,152 bytes per piece, which is 2MB.

the files in those two directories, the Rightscorp software would still generate notices of claimed infringement for [REDACTED]

[REDACTED] the Rightscorp software makes no attempt to verify that the peer actually does either of those things as a condition for generating and sending the notifications of claimed infringement.

20. The Rightscorp software uses the BitTorrent protocol to identify IP address and port combinations that send a bitfield indicating that the peer at that IP address and port is offering to disseminate to send 10% of the pieces of the torrent payload. The Rightscorp software notes the particular dates and times the bitfield was observed and subsequently generates and sends notifications of claimed infringement for those IP address and port combinations.<sup>24</sup> The Rightscorp software cannot attribute the bitfield it observes to particular individuals because Rightscorp cannot know, from the IP address, port, and time alone, the person who controls the computer from which the bitfield originated.<sup>25</sup> Instead, if Rightscorp associates the IP address with Cox at the date and time at issue, the Rightscorp software sends the notifications of claimed infringement to Cox to give Cox the opportunity to identify the Cox account holder to whom it had assigned the IP address at the date and time at issue. Individual IP addresses can belong to multiple Cox account holders over time, and Rightscorp cannot determine which account holder had a given IP address at a given time. In some cases, Cox can identify which account holder had a particular IP address at a particular time, but it cannot determine whether or not the Cox account holder was using a computer at that IP address at that time or even whether any other particular individuals were using a computer at that IP address at that time. Multiple computers can access

<sup>24</sup> See Rucinski Rebuttal at ¶¶24 – 33.

<sup>25</sup> See also Rucinski Rebuttal at ¶¶29 – 33.

the Internet at the same time through a single IP address assigned by an ISP (e.g. computers of friends, family, roommates, neighbors, employees, patrons, etc. connecting to the same local Wi-Fi network), and Cox cannot determine which such computer, if any, a Cox account holder is using at any given time. Therefore the Rightscorp software does not, and cannot, determine that any conditions it observes at IP address and port combinations are attributable to Cox account holders.

21. The Rightscorp software records alleged infringements as follows. First, it identifies .torrent files and the sound recordings that it is looking for that are part of the payloads that the .torrent files describe. Then the Rightscorp software looks for peers using the BitTorrent protocol that exhibit bitfield information showing that the peers are willing to share at least 10% of the torrent payload corresponding to a particular .torrent file. When it finds a peer offering at least that 10% portion of a torrent payload, Rightscorp assumes that the peer is offering every song that it monitors within the entire torrent payload. Then Rightscorp keeps monitoring the same peer computer on multiple occasions. Every time it observes the same 10% threshold of the torrent payload indicated by the bitfield sent by the peer, it records these subsequent observations in the same way that it recorded the first. Thus if a torrent payload has 300 songs, and Rightscorp monitors 80 of them, the process is as follows: (1) When Rightscorp finds a bitfield indicating that the associated peer is offering to disseminate at least 10% of the payload, Rightscorp assumes that peer has engaged in 80 infringements of the songs Rightscorp monitors, without Rightscorp confirming that the songs are actually present or that the peer is actually disseminating them. (2) Rightscorp's software will generate 80 notifications of claimed infringement based on that one faulty observation because Rightscorp sends one notification of claimed infringement per allegedly infringed work in one observation. (3) When Rightscorp revisits that peer 100 times and observes the exact same conditions, Rightscorp records that as 8,000 infringements (80 times 100) and sends 8,000 notifications of claimed infringement – all with no change to the peer conditions, no evidence that the peer actually has the songs, and no evidence that the peer actually transmits the songs to anyone. The only check on the number of notifications of claimed

infringement that get sent in this manner is a mechanism that limits the generation of notifications of claimed infringement to one per IP address, port, and filename combination per day. This check does not prevent the same sound recording (or even different sound recordings of the same musical composition as evidenced above by the Beatles Files at Issue) with different filenames from resulting in multiple notifications of claimed infringement on the same day. I also cannot determine exactly when this check was implemented in the Rightscorp source code. I discuss this process in more detail in Rucinski Rebuttal ¶¶24 – 33 and Rucinski Supplemental ¶¶25 – 28. This implementation in the Rightscorp software means that a single faulty monitoring event of the Rightscorp software can result in many notifications of claimed infringement on one occasion, and repeated monitoring can yield an enormous number of notifications of claimed infringement in a short time period.

22. The Rightscorp system can send multiple notifications of claimed infringement per day to an ISP where those notifications of claimed infringement concern the same IP address, port, and filename; I discuss this in more detail in Rucinski Supplemental at ¶¶26 – 28. I also identify five notifications of claimed infringement sent to Cox in Rucinski Rebuttal at ¶45 where the IP address, port, filename, .torrent file, and date are identical. Plaintiffs suggest that these five notifications are intended to be an exhaustive list,<sup>26</sup> but these five notifications of claimed infringement are merely illustrative and not meant to be exhaustive. They demonstrate that the Rightscorp software, at least at the time it generated those notifications, did not prevent these notifications from being generated despite all of them having the same IP address, port, filename, .torrent file, and date.

23. Plaintiffs' First Amended Complaint on December 10, 2014, identifies exactly three IP addresses as examples of "egregious repeat infringers"; those IP addresses are 98.185.52.220, 24.252.149.211, and 98.176.207.69.<sup>27</sup> **Exhibit 9** to this declaration is the rows

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<sup>26</sup> Dkt. 265 at page 6: "For example, Cox's expert, Christopher Rucinski, stated that *five* notices out of the over *2.5 million* notices sent to Cox violated a Rightscorp script because they were sent on the same day for the same infringement." (emphasis in original).

<sup>27</sup> Dkt. 16 at ¶¶27 – 28.



from the infractions table that Rightscorp produced, filtered to only include rows corresponding to the IP address 98.185.52.220. **Exhibit 10** to this declaration is the rows from the infractions table that Rightscorp produced, filtered to only include rows corresponding to the IP address 24.252.149.211. **Exhibit 11** to this declaration is the rows from the infractions table that Rightscorp produced, filtered to only include rows corresponding to the IP address 98.176.207.69. Rightscorp alleges that in total these three IP addresses engaged in 114,103 acts of copyright infringement.<sup>28</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

|            |            |            |            |            |
|------------|------------|------------|------------|------------|
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |

[REDACTED]

<sup>28</sup> Dkt. 16 at ¶27.

<sup>29</sup> [REDACTED]

<sup>30</sup> [REDACTED]

<sup>31</sup> [REDACTED]

[REDACTED] none relate to any of the full file samples that Rightscorp produced in this case (which I attempted to match by infraction GUID). **Exhibit 9**, **Exhibit 10**, and **Exhibit 11** also illustrate how Rightscorp detects multiple infringements per day (the “idate” column label indicates the time of the bitfield observation for a given row) for the same IP address and port combination for the same filename<sup>32</sup> as well as likely multiple versions of the same sound recording for the same IP address and port combination, despite a slightly different filename, in the same torrent payload.<sup>33</sup> Rightscorp also asserts specifically that, “Cox has received 54,489 individual notifications for each act of copyright infringement committed by its subscriber having IP address 98.185.52.220.”<sup>34</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>32</sup> See at least rows 7 and 8 of **Exhibit 9**.

<sup>33</sup> See at least rows 1564 and 1565 of **Exhibit 10**, [REDACTED]

[REDACTED]

<sup>34</sup> Dkt. 16 at ¶27.

**C. Full File Downloads That Rightscorp Caused**

24. The Rightscorp software has the capability to download and store full files of sound recordings corresponding to Plaintiffs' underlying compositions from specific peers. Plaintiffs refer to this capability in their First Amended Complaint filed on December 10, 2014: "The [Rightscorp] system also has the capability to acquire entire files from the infringing host computers."<sup>35</sup> The `SampleIt2.java` file is primarily responsible for this full file acquisition capability, though other source code files are used in the process as well.<sup>36</sup> The only full file downloads of which I am aware that `SampleIt2.java` created are on two hard drives that Rightscorp produced for this litigation and that are the subject of my analysis in Rucinski Supplemental at ¶¶57 – 66. These full file downloads targeted Cox IP addresses, and none of these full file downloads occurred before February 2014.

25. I have seen no evidence that full file downloads occur as part of a sampling ratio.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **Exhibit 12** to this declaration is Frederiksen-Cross Opening, and **Exhibit 13** to this declaration is the corrected version of Frederiksen-Cross Reply. In his deposition, Mr. Steele did not recall communicating that information about the sampling ratio. **Exhibit 14** to this declaration is the relevant excerpt from the July 29, 2015 deposition of Robert Steele [47:20 – 48:25].

26. [REDACTED]

[REDACTED]

[REDACTED] **Exhibit 15** to this declaration is

<sup>35</sup> Dkt. 16 at ¶2.

<sup>36</sup> See Rucinski Rebuttal at ¶¶36 – 37.

the relevant excerpt from the July 3, 2015 Deposition of Greg Boswell [251:4 – 252:10]. I understand that Rightscorp also had a dispute of some kind with Grande. **Exhibit 16** to this declaration is a May 11, 2015 Ars Technica article entitled “Small ISP stands up to Rightscorp’s ‘piracy fishing expedition’ and wins,” which mentions the dispute with Grande. [REDACTED]

[REDACTED]

[REDACTED]

27. In connection with Rucinski Supplemental, I analyzed the full file samples that Rightscorp collected to see to what extent they related to the copyrighted works asserted in this case as of July 2015, which I will refer to as the “Previous Asserted Works”. According to the music file samples Rightscorp produced, I found that Rightscorp collected full file samples for only a relatively small fraction (about 4.6%) of the notices it tried to send to Cox regarding the Previous Asserted Works.<sup>37</sup> After submitting Rucinski Supplemental on July 31, 2015, BMG, one of the plaintiffs in this case, submitted a new listing of asserted works. **Exhibit 5** to this declaration is Schedule C appended to BMG’s Second Supplemental Response to Defendant CoxCox, LLC’s Interrogatory No. 1. I have performed an analysis using the same methodology I used in Exhibit D of Rucinski Supplemental taking into account this new list of Asserted Works; that analysis is **Exhibit 17** to this declaration.

28. The full file samples that Rightscorp did collect reveal multiple errors in its detection of alleged infringements. I discuss this in detail in Rucinski Supplemental at ¶¶63 – 66, but in summary there were multiple instances of (1) full file samples not matching the corresponding song title in the produced *infractions* database table and (2) files that are not sound recordings (e.g. pictures, PDFs, and videos) being sampled and associated with songs in the *infractions* table. I attach to this declaration two such pictures and two such PDFs as the following exhibits: **Exhibit 18**,<sup>38</sup> **Exhibit 19**,<sup>39</sup> **Exhibit 20**,<sup>40</sup> and **Exhibit 21**.<sup>41</sup> Barbara

<sup>37</sup> See Rucinski Supplemental at Exhibit D.  $116,732 / 2,544,846 \approx 0.046$

<sup>38</sup> [REDACTED]

Frederiksen-Cross testified [REDACTED]

[REDACTED] **Exhibit 22** to this declaration is a selection of relevant excerpts from the August 12, 2015 Deposition of Barbara Frederiksen-Cross [146:8 – 147:21, 153:10 – 157:19].

[REDACTED]

**Exhibit 23** to this declaration is the relevant excerpt from the June 11, 2015 Deposition of Robert Steele [136:19 – 22]. Nevertheless, it remains unclear to me whether Rightscorp used Audible Magic, Acoustid, or a manual process to attempt to verify any particular sound recording at any given time<sup>42</sup> and the resulting errors I identified above cause me to question the reliability of this verification process. Had Rightscorp collected full file samples for more than just the very small percentage of notifications of claimed infringement that it actually did collect, it is possible that those additional full file samples would have contained errors as well, but it is impossible to know one way or another because Rightscorp apparently did not download those full file samples.

29. Although the Rightscorp software does download some files of sound recordings that embody the Asserted Works from *specific IP address and port combinations*, for the reasons I state in ¶27 of this declaration, I have seen no evidence that the Rightscorp software accurately

39 [REDACTED]

40 [REDACTED]

41 [REDACTED]

<sup>42</sup> See Rucinski Rebuttal at ¶23.

determines whether *Cox account holders* sent files embodying the Asserted Works to anyone at all. Similarly, I have seen no evidence that the Rightscorp software accurately determines whether Cox account holders actually transmitted any files or copies of works to the public. I have also seen no evidence that the samples that Rightscorp collected using its software were as a result of downloads from Cox account holders. The only downloaded music files I have seen are music files that were selectively downloaded by the Rightscorp software, and I have seen no evidence that accurately determines the individuals from whom Rightscorp downloaded those music files.

**VII. EVIDENCE OF WHAT HISTORICAL VERSIONS OF RIGHTSCORP SOFTWARE COLLECT AND DO NOT COLLECT REGARDING ALLEGED COPYRIGHT INFRINGEMENT**

30. I discuss historical versions of Rightscorp software corresponding to the operation of the software at some point in 2013 in Rucinski Supplemental at ¶¶29 – 49. While the historical source code files that Rightscorp produced provide some information as to how the historical versions of Rightscorp software operated, relevant source code files are missing, and I am therefore unable to determine the evidentiary basis for any specific notifications of claimed infringement that Rightscorp generated using historical versions of its software. For example, the historical versions of Rightscorp software do not indicate the origin of .torrent files that the software used and how or whether the software compared them to a list of works at issue.<sup>43</sup> The historical versions of Rightscorp software also do not indicate how Rightscorp verified sound recording files from torrent payloads.<sup>44</sup> I also do not know whether the historical versions of Rightscorp software employed some ancillary process similar to the 10% bitfield threshold of the current version, though the implementation of `Test5.java` in the historical versions of Rightscorp software is compatible with such an ancillary process being present.<sup>45</sup> The historical

<sup>43</sup> See Rucinski Supplemental at ¶¶31 – 34.

<sup>44</sup> See Rucinski Supplemental at ¶¶35 – 36.

<sup>45</sup> See Rucinski Supplemental at ¶37.

versions of Rightscorp software also do not include any substance regarding how Rightscorp calculated the appropriate number of notifications of claimed infringement to send.<sup>46</sup> The historical versions of Rightscorp software also do not include any substance relating to the actual generation of notifications of claimed infringement, and they do not include any substance relating to the identifications of IP address and port combinations that Rightscorp might identify as “repeat infringers”.<sup>47</sup> While the historical versions of Rightscorp software do include historical versions of `SampleIt2.java` that function similarly to the most current version of `SampleIt2.java` that Rightscorp has produced, I cannot determine from the historical versions of Rightscorp software the extent to which Rightscorp actually used `SampleIt2.java` to download sound recordings.

31. For any particular notification of claimed infringement generated by historical Rightscorp code, I cannot know the software that was used to generate it because full historical versions of Rightscorp code have not been produced. While some of the produced historical code demonstrates how the software operated on data at certain points in the process, I cannot know the extent to which historical code that was not produced operated on and changed data further, either before or after it was processed by the historical code that was produced. Examining in isolation the historical source code modules that Rightscorp produced is not enough for me to determine how those source code modules interacted with the rest of the Rightscorp software, and it does not allow me to even determine how those source code modules interacted with each other. While the historical source code modules that Rightscorp produced are integral to the operation of the historical Rightscorp system, there are other source code modules that Rightscorp did not produce that are also integral to the operation of that same system.

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<sup>46</sup> See Rucinski Supplemental at ¶38.

<sup>47</sup> See Rucinski Supplemental at ¶39.

I declare under the penalty of perjury that the foregoing is true and correct. Executed September 21, 2015.

A handwritten signature in cursive script, reading "Christopher T. Rucinski", is written over a horizontal line.

Christopher T. Rucinski



**CERTIFICATE OF SERVICE**

I hereby certify that on September 21, 2015, the foregoing was filed and served electronically by the Court's CM/ECF system upon all registered users.

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